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**Bibliography.**

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**Summary.**

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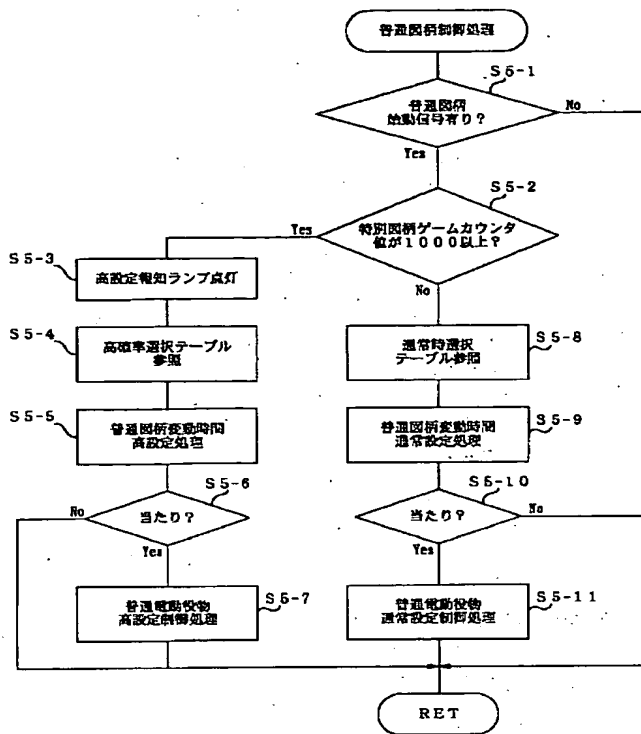
**(57) [Abstract]**

[Technical problem] It makes it possible to perform a healthy game, without spoiling the fun of a game by preventing a sharp reduction of \*\*\*\*, even if it is the case where a prize mode is not specially constituted in pattern display, in spite of having performed the game for a long time.

[Means for Solution] Although the transaction count of the special pattern in pattern display exceeded the predetermined value specially, when the lottery result in a winning-a-prize determination means is not winning, the increase means in winning-a-prize possibility for raising possibility that a game sphere will win a prize of a starting winning-a-prize mouth is established. While preventing a sharp reduction of \*\*\*\* by operating this increase means in winning-a-prize possibility and enabling continuation of the healthy game covering a long time, more game spheres are made to win a prize of a starting winning-a-prize mouth, and the number of times of a lottery in a winning-a-prize determination means is made to increase.

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#### CLAIMS

[Claim(s)]

[Claim 1] The pinball machine characterized by providing the following. It is usually pattern display for [ which consists of two or more display modes ] usually indicating the pattern by change. It is pattern display specially for indicating the special pattern which consists of two or more display modes by change. It is usually a pattern starting mouth a condition [ the game sphere having passed ] for [ in the aforementioned common pattern display ] making the change display of a pattern

usually start. The starting winning-a-prize mouth for making the change display of the special pattern in the aforementioned special pattern display start a condition [ having the change member which can be switched between the state of being easy to receive a game sphere, and the state of being hard to receive a game sphere, and the game sphere having won a prize ], Based on predetermined probability, cast lots and usually for [ in the aforementioned common pattern display ] usually determining the halt display mode of a pattern A pattern determination means, Based on predetermined probability, cast lots and it has a winning-a-prize determination means for determining the halt display mode of the special pattern in the aforementioned special pattern display. When the lottery in the aforementioned common pattern determination means is won and the prize mode usually predetermined in the halt display mode of a pattern in the aforementioned common pattern display is constituted It switches to the state where only a predetermined time tends to receive a game sphere for the aforementioned change member. In the pinball machine to which a special game advantageous to a game person is made to usually perform as compared with a game when the lottery in the aforementioned winning-a-prize determination means is won and the halt display mode of the special pattern in the aforementioned special pattern display constitutes a predetermined prize mode The increase means in winning-a-prize possibility for raising possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth when the lottery result in the aforementioned winning-a-prize determination means is not winning, although the transaction count of the special pattern in the aforementioned special pattern display exceeded the predetermined value.

[Claim 2] The aforementioned increase means in winning-a-prize possibility is a pinball machine according to claim 1 characterized by raising possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth by raising the success-in-an-election probability in the aforementioned common pattern determination means.

[Claim 3] The aforementioned increase means in winning-a-prize possibility is a pinball machine according to claim 1 characterized by raising possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth by [ in the aforementioned common pattern display means ] usually shortening the change display time of a pattern.

[Claim 4] The aforementioned increase means in winning-a-prize possibility is a pinball machine according to claim 1 characterized by raising possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth by extending the time when the aforementioned change member is changed into the state of being easy to receive a game sphere.

[Claim 5] The aforementioned increase means in winning-a-prize possibility is a pinball machine according to claim 1 characterized by being a means to increase the number of awarded balls paid out when a game sphere wins a prize of the aforementioned starting winning-a-prize mouth.

[Claim 6] A pinball machine given [ of the claims 1-5 characterized by establishing the information means for reporting to a game person that the aforementioned increase means in winning-a-prize possibility is operating ] in any 1 term.

[Claim 7] control of the main control unit for the aforementioned pinball machine being electrically controlled by the control unit, and this control unit performing main control, and this main control unit — being based — \*\* — a pinball machine given [ of the claims 1-6 characterized by consisting of a sub control unit for controlling and including the aforementioned increase means in winning-a-prize possibility in the aforementioned sub control unit ] in any 1 term.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the pinball machine to which a special game advantageous to a game person is made to usually perform as compared with a game, when the halt display mode of the special pattern in pattern display constitutes a predetermined prize mode specially.

[0002]

[Description of the Prior Art] Conventionally, the pachinko machine is known as this kind of a pinball machine. The conventional pachinko machine makes the game circles prepared in the front face of the game board start the change display of the special pattern in pattern display specially a condition [ the game sphere having won a prize of two or more starting winning-a-prize mouths which pattern display is specially prepared in order to indicate the pattern by change specially, and were prepared apart from the general winning-a-prize mouth ]. And by the lottery using the random number, the halt display mode of the special pattern in pattern display is determined specially, and the change display of a pattern is specially stopped based on this determination.

[0003] When the halt display mode of the special pattern in pattern display becomes "great success" (for example, "7", "7", "7") which is a predetermined prize mode specially, a special game advantageous to a game person is made to usually perform here as compared with a game. By opening the large winning-a-prize mouth prepared apart from for example, the general winning-a-prize mouth until the game sphere of a predetermined time or the predetermined number wins a prize, this special game makes many game spheres win a prize, and can gain many awarded balls now in a short time.

[0004] Moreover, the change member which can be switched to a starting winning-a-prize mouth between the state of being easy to receive a game sphere, and the state of being hard to receive a game sphere is prepared, and the change member is switched to the state of being hard to receive a game sphere, in the usual state.

[0005] Moreover, in order to usually indicate the pattern by change, pattern display is usually prepared, and game circles are made to usually start the change display of the common pattern in pattern display a condition [ two or more things which were established apart from the general winning-a-prize mouth and to which the game sphere usually passed the pattern starting mouth ]. And by the lottery using the random number, the halt display mode of the common pattern in pattern display is usually determined, and the change display of a pattern is usually stopped based on this determination.

[0006] Here, usually, when it becomes a prize mode (for example, "3" or "7") usually predetermined in the halt display mode of a pattern in pattern display, it switches to the state where only a predetermined time tends to receive a game sphere for a change member.

[0007] In such a pachinko machine, the probability that "great success" will occur in pattern display specially is defined beforehand. In the pachinko machine which has set the probability that therefore, "great success" will occur as  $1/315$ , while the change display of the special pattern in pattern display is performed 315 times specially, one "great success" may occur.

[0008]

[Problem(s) to be Solved by the Invention] However, it is the talk on probability which "great success" generates at 1 time of a rate in 315 times to the last, and when the change display of the special pattern in pattern display is performed 315 times specially, "great success" does not necessarily surely occur. That is, when extreme, even if the number of times of a change display of the special pattern in pattern display exceeds specially the number of times which "great success" should generate sharply, "great success" may not occur at all.

[0009] Thus, even if it continues a game for a long time, when "great success" does not occur at all, a game person will get bored with a game and will spoil the fun of a game. It becomes impossible moreover, to have to purchase the game sphere for presenting a game in large quantities, and for balance of the profits of a game store and a game person to collapse, and to make a healthy game perform.

[0010] this invention aims at offering the pinball machine which made it possible to perform a healthy game, without spoiling the fun of a game by preventing a sharp reduction of \*\*\*, even if it is the case where a prize mode is not specially constituted in pattern display, in spite of having been made in view of the situation mentioned above and having performed the game for a long time.

[0011]

[Means for Solving the Problem] The pinball machine of this invention is equipped with the following focus in order to attain the purpose mentioned above. The pinball machine of this invention usually for [ which consists of two or more display modes ] usually indicating the pattern by change Namely, pattern display, For indicating the special pattern which consists of two or more display modes by change, specially Pattern display, For [ in the aforementioned common pattern display ] making the change display of a pattern usually start, usually a condition [ the game sphere having passed ] A pattern starting mouth, The starting winning-a-prize mouth for making the change display of the special pattern in the aforementioned special pattern display start a condition [ having the change member which can be switched between the state of being easy to receive a game sphere, and the state of being hard to receive a game sphere, and the game sphere having won a prize ], Based on predetermined probability, cast lots and usually for [ in the aforementioned common pattern display ] usually determining the halt display mode of a pattern A pattern determination means, Based on predetermined probability, cast lots and it has a winning-a-prize determination means for determining the halt display mode of the special pattern in the aforementioned special pattern display. When the lottery in the aforementioned common pattern determination means is won and the prize mode usually predetermined in the halt display mode of a pattern in the aforementioned common pattern display is constituted It switches to the state where only a predetermined time tends to receive a game sphere for the aforementioned change member. In the pinball machine to which a special game advantageous to a game person is made to usually perform as compared with a game when the lottery in the aforementioned winning-a-prize determination means is won and the halt display mode of the special pattern in the aforementioned special pattern display constitutes a predetermined prize mode Although the transaction count of the special pattern in the aforementioned special pattern display exceeded the predetermined value, when the lottery result in the aforementioned winning-a-prize determination means is not winning, it is characterized by establishing the increase means in winning-a-prize possibility for raising possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth.

[0012] Moreover, in the aforementioned pinball machine, by raising the success-in-an-election probability in the aforementioned common pattern determination means, the aforementioned increase means in winning-a-prize possibility can be constituted so that possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth may be raised.

[0013] Moreover, in the aforementioned pinball machine, by [ in the aforementioned common pattern display means ] usually shortening the change display time of a pattern, the aforementioned increase means in winning-a-prize possibility can be constituted so that possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth may be raised.

[0014] Moreover, in the aforementioned pinball machine, by extending the time when the aforementioned change member is changed into the state of being easy to receive a game sphere, the aforementioned increase means in winning-a-prize possibility can be constituted so that possibility that a game sphere will win a prize of the aforementioned starting winning-a-prize mouth may be raised.

[0015] Moreover, in the aforementioned pinball machine, the aforementioned increase means in winning-a-prize possibility can be considered as a means to increase the number of awarded balls paid out when a game sphere wins a prize of the aforementioned starting winning-a-prize mouth.

[0016] Moreover, in the aforementioned pinball machine, it is possible to establish the information means for reporting to a game person that the aforementioned increase means in winning-a-prize possibility is operating.

[0017] moreover, control of the main control unit for the aforementioned pinball machine being electrically controlled by the control unit, and this control unit performing main control, and this main control unit -- being based -- \*\* -- it consists of a sub control unit for controlling, and the aforementioned increase means in winning-a-prize possibility can be constituted so that it may be contained in the aforementioned sub control unit

[0018]

[Embodiments of the Invention] Hereafter, based on a drawing, 1 operation form of the pinball machine concerning this invention is explained. In addition, the following explanation explains taking the case of a pachinko machine as a typical pinball machine.

[0019] Drawing 1 is the front view of the game board 1 used for the pachinko machine concerning 1 operation form of this invention. The pachinko machine concerning 1 operation form of this invention is equipped with the game board 1 for discharging a game sphere with a launcher (not shown) and performing a game. The front face of this game board 1 is equipped with the game section 3 of an approximate circle form surrounded by the guide rail 2 of a couple as shown in drawing 1. in the game section 3 the obstacle of two or more obstacle nails, a wind mill, etc. -- while arranging a member 4 -- plurality -- with the pattern display 5 specially, in order to indicate the pattern by change specially It has two winning-a-prize mouths of the pattern display 7 and plurality usually which usually have pattern display Light Emitting Diode 6a and b, and the out mouth 8 for discharging the game sphere which won a prize of neither of the winning-a-prize mouths out of the game section 3.

[0020] The general winning-a-prize mouth 9 for discharging the awarded balls of a



predetermined number a condition [ the <winning-a-prize mouth> above-mentioned winning-a-prize mouth being divided into two or more kinds by the function, and the game sphere having won a prize ], For [ in the pattern display 7 ] making the change display of pattern display Light Emitting Diode 6a and b usually start, usually a condition [ the game sphere having passed ] The pattern starting mouth 10, change which can be switched between the state of being easy to receive a game sphere, and the state of being hard to receive a game sphere -- a member -- The starting winning-a-prize mouth 12 for making the change display of a special pattern [ in / the pattern display 5 / for having (the electric accessory 11 is usually called hereafter), and the game sphere having won a prize ] start specially as conditions, The change has become possible between the state of being easy to receive a game sphere, and the state of being hard to receive a game sphere. When the halt display mode of the pattern in the pattern display 5 constitutes a predetermined prize mode specially, it consists of a large winning-a-prize mouth 13 switched to the state where only a predetermined time and the number of times of predetermined tend to receive a game sphere.

[0021] The <common pattern starting mouth> above-mentioned common pattern starting mouth 10 is formed in the lower left direction of the starting winning-a-prize mouth 12, and detects the game sphere to pass. This change display of a pattern [ in / the pattern display 7 / usually / based on this winning-a-prize storage / the storage of the passage sphere of the pattern starting mouth 10 is usually attained to four pieces, and ] is performed. Moreover, four common pattern storage Light Emitting Diode 14 for usually displaying the passage storage number of the pattern starting mouth 10 is specially formed in the upper part of the pattern display 5. By the lighting number of this common pattern storage Light Emitting Diode 14, the passage storage number of the pattern starting mouth 10 can usually be displayed.

[0022] The so-called common electric accessory 11 of the shape of a tulip which can be switched between the state of being easy to receive a game sphere, and the state of being hard to receive a game sphere is formed in the upper part of the <starting winning-a-prize mouth> above-mentioned starting winning-a-prize mouth 12. Usually, in this usual state, the electric accessory 11 is in the state of being hard to receive a game sphere, and when it usually becomes "a hit" in the pattern display 7, it is switched to the state where only a predetermined time (for example, usually setting at the time of a setup for 0.3 seconds) tends to receive a game sphere.

[0023] Moreover, the storage of the winning-a-prize sphere to the starting winning-a-prize mouth 12 is attained to four pieces, and the change display of the pattern in the pattern display 5 is specially performed based on this winning-a-prize storage. Moreover, four special pattern storage Light Emitting Diode 15 for displaying the winning-a-prize storage number to the starting winning-a-prize mouth 12 is specially formed in the upper part of the pattern display 5. By the lighting number of this special pattern storage Light Emitting Diode 15, the winning-a-prize storage number to the starting winning-a-prize mouth 12 can be displayed.

[0024] Furthermore, the high setting information lamp 16 for reporting that the winning-a-prize possibility to the starting winning-a-prize mouth 12 is raised under the starting winning-a-prize mouth 12 is formed. By turning on this high setting information lamp 16, it can report that the winning-a-prize possibility to the starting winning-a-prize mouth 12 is raised to a game person.

[0025] The <special pattern display> above-mentioned special pattern display (image display equipment) 5 consists of a liquid crystal display of the game section 3 mostly formed in the center, and game production can be performed now by performing two or more animation displays corresponding to the game state expressed by the picture while indicating the pattern by change specially. The special pattern specially displayed on the pattern display 5 is "0", "1", and "2"... As compared with a general game, a special game advantageous to a game person can be performed by considering the case where consisted of numbers, such as "7", "8", and "9", and the combination of the number by which it was indicated by halt is set to "7", "7", and "7" as "great success." This special game is a game which can gain many awarded balls by switching to the state where only a predetermined time and the number of times of predetermined tend to receive a game sphere for the large winning-a-prize mouth 13, and making many game spheres win a prize rather than a general game.

[0026] The <common pattern display> above-mentioned common pattern display 7 is equipped with common pattern display Light Emitting Diode usually for pattern display Light Emitting Diode 6a and red luminescence for green luminescence specially prepared above pattern display 5 b. a and b blink by turns. this -- usually -- the pattern display 7 -- two pieces -- usually -- the pattern display Light Emitting Diode 6 -- It carries out. these common patterns display Light Emitting Diode 6 -- the case for [ when the blink period of a and b expired ] green luminescence where the pattern display Light Emitting Diode 6 is usually on -- per [ " ] -- " -- \*\* -- in this case It usually switches to the state where it was prepared in the starting winning-a-prize mouth 12 and where only a predetermined time tends to receive a game sphere for the electric accessory 11, and carries out that it is easy to make a game sphere win a prize of the starting winning-a-prize mouth 12.

[0027] in addition, two pieces which usually mentioned the pattern display 7 above -- usually -- the pattern display Light Emitting Diode 6 -- a and b are had and constituted and also 7 segment drop etc. can also constitute in this case, it displays on 7 segment drop -- usually -- as a pattern -- "0", "1", and "2"... the numbers, such as "7", "8", and "9", are indicated by change, and the number by which it was indicated by halt presupposes "3" or "it is the case where it becomes 7" per [ " ]" [ for example, ]

[0028] <The game in a pachinko machine>, next the game in the above-mentioned pachinko machine are explained. In the above-mentioned pachinko machine, if the game sphere discharged in the game section 3 by the launcher (not shown) wins a

prize of general winning-a-prize mouth 9 grade, it will pay out the awarded balls of a predetermined number (for example, ten pieces).

[0029] Moreover, the change display of the common pattern in the pattern display 7 is made to usually start a condition [ the game sphere having usually passed the pattern starting mouth 10 ]. and it can usually set to the pattern display 7 by the lottery using the random number -- usually -- the pattern display Light Emitting Diode 6 -- the halt display mode of a and b -- determining -- this determination -- being based -- usually -- the pattern display Light Emitting Diode 6 -- the change display of a and b is stopped.

[0030] here, it can usually set to the pattern display 7 -- usually -- the pattern display Light Emitting Diode 6 -- the halt display mode of a and b -- per [ " ] -- " -- if it becomes, it will usually switch to the state where it was prepared in the starting winning-a-prize mouth 12 and where only a predetermined time (for example, usually setting at the time of a setup for 0.3 seconds) tends to receive a game sphere for the electric accessory 11

[0031] Moreover, the change display of the special pattern in the pattern display 5 is made to start specially a condition [ the game sphere having won a prize of the starting winning-a-prize mouth 12 ]. And by the lottery using the random number, the halt display mode of the special pattern in the pattern display 5 is determined specially, and the change display of a pattern is specially stopped based on this determination.

[0032] If the halt display mode of the special pattern in the pattern display 5 is "becoming it a great success" specially here, the large winning-a-prize mouth 13 will be opened until it receives the winning-a-prize sphere of a predetermined time (for example, 30 seconds) or the predetermined number (for example, ten pieces). Moreover, in the large winning-a-prize mouth 13, the continuation winning-a-prize mouth (not shown) is prepared, and if the game sphere which won a prize in the large winning-a-prize mouth 13 also wins a prize of a continuation winning-a-prize mouth, open operation of the large winning-a-prize mouth 13 mentioned above will be repeated until it reaches the number of times of predetermined (for example, 16 times).

[0033] <Control unit> Each device which constitutes the pachinko machine mentioned above is controlled by the control unit 50 equipped with the microcomputer etc. The outline composition of this control unit is explained based on drawing 2. Drawing 2 is the block diagram showing the outline composition of a control unit 50.

[0034] the change display of a special pattern [ in / the pattern display 5 / specially / based on control of the main-control substrate 51 for performing main control about generating of great success etc., as the control unit 50 for controlling each device which constitutes a pachinko machine is shown in drawing 2, and this main-control substrate 51 ] etc. -- \*\* -- it is constituted by the sub control board 52 for controlling Moreover, on the other hand, it can communicate from the main-control

substrate 51 only to \*\* to the sub control board 52.

[0035] The <main-control substrate> main-control substrate 51 is equipped with main CPU53 for performing data processing, main ROM54 which memorized the master control, and main RAM55 which is temporary storage, and when main CPU53 grade operates according to the control program memorized by main ROM54, game discharge control, awarded-balls emission control, a voice control, etc. are performed. In addition, main CPU53 performs processing from the head of a control program based on the input of the reset signal generated periodically.

[0036] Moreover, the relay substrate 56 is main-control minded [ 51 ]. The winning-a-prize sphere to the large winning-a-prize mouth 13 The Dainyuu awarded-balls sensor 57 for detecting, and the common pattern starting mouth 10 With the starting winning-a-prize sphere sensor 60 for detecting the general winning-a-prize sphere sensor 59 for usually detecting the pattern starting sensor 58 and the winning-a-prize sphere to the general winning-a-prize mouth 9; in order to detect the game sphere to pass, and the winning-a-prize sphere to the starting winning-a-prize mouth 12, and a launcher 68 The return sphere sensor 62 for detecting the discharge sphere sensor 61 for detecting the game sphere discharged toward the game section 3 and the game sphere which has returned to the discharge position, without reaching into the game section 3 is connected, and the sphere detecting signal from these sensors is inputted.

[0037] In the game of a pachinko machine, if the game sphere with which the pattern starting sensor 58 usually passed the pattern starting mouth. 10 is detected, main CPU53 will perform the lottery using the random number based on the detecting signal concerned, and will usually determine the halt display mode of the common pattern in the pattern display 7 based on the lottery result concerned. In addition, the signal output to the pattern display 7 is usually performed through the ramp-control circuit 63.

[0038] Moreover, if the starting winning-a-prize sphere sensor 60 detects a winning-a-prize sphere, main CPU53 will perform the lottery using the random number based on the detecting signal concerned, and will determine the change pattern in the pattern display 5, and the halt display mode of a special pattern specially based on the lottery result concerned.

[0039] Furthermore, the driving gear of the starting winning-a-prize mouth 12 and the driving gear of the Dainyuu \*\* mouth 13 are connected to the main-control substrate 51 through the relay substrate 56, and the switching action of various kinds of ornament displays and the electric accessory 11 of the starting winning-a-prize mouth 12 and the switching action of the Dainyuu \*\* mouth 13 are controlled.

[0040] Moreover, the voice-control circuit 64 is connected to the main-control substrate 51, and a sound effect etc. is generated from a loudspeaker 65 based on control of this voice-control circuit 64. Furthermore, the awarded-balls control circuit 66 is connected to the main-control substrate 51, and awarded-balls discharge operation and hit ball discharge operation by the launcher 68 are

controlled by the awarded-balls exhaust 67 based on control of this awarded-balls control circuit 66.

[0041] Moreover, the pattern storage Light Emitting Diode 14, the special pattern storage Light Emitting Diode 15, the high setting information lamp 16, and Light Emitting Diode 17 for an ornament are usually connected to the output side of the main-control substrate 51 through the ramp-control circuit 63, and operation of these devices is controlled.

[0042] A pattern determination means and a special pattern determination means are usually constituted by the main-control substrate 51 mentioned above.

[0043] The <sub control board> sub control board 52 is constituted by the substrate separate from the substrate which constitutes the main-control substrate 51, generates the image data which should be displayed on image display equipment (specially pattern display) 5 based on the command received from the main-control substrate 51, and performs the display control of the image data concerned.

[0044] This sub control board 52 While interpreting the command received from the main-control substrate 51 The work RAM 71 which is the program ROM 70 and temporary storage which memorized the control program performed as the factice CPU 69 and Factice CPU 69 for performing the parameter setup of VDP (Video Display Processor) 73, and a picture While reading the dot data within a picture ROM 72 based on the parameter set up as the picture ROM 72 and Factice CPU 69 for memorizing the dot data for forming While D/A converter 74 for changing into an RGB code VDP 73 for generating the image data which should be displayed, and the image data generated by this VDP 73, and a control program detect having gone into the unusual manipulation routine By the reset instruction from CTC (Count Timer Controller) 75 and CTC 75 which have the watchdog timer ability for resetting factices CPU 69 and VDP 73 in a predetermined time in a normal manipulation routine It has the reset IC 76 for generating a reset signal. When sub CPU 69 grade operates according to the control program memorized by the program ROM 70, the image display in image display equipment (specially pattern display) 5 is controlled by the sub control board 52.

[0045] In addition, the increase means in winning-a-prize possibility is constituted by the sub control board 52 mentioned above.

[0046] <Game control in a pachinko machine>, next game control of the pachinko machine by the control unit 50 mentioned above are explained. Drawing 3 -7 are a flow chart which shows the procedure of the game control in a pachinko machine. a condition [ set / the interruption permission flag / while repeating main game processing (S1\_1-S1\_4) as shown in drawing 3 and performing it in the main-control substrate 51 ] -- carrying out -- being periodical (every / for example, / 3ms) -- interruption processing (S2\_1-S2\_12) shown in drawing 4 is performed

[0047] If a power supply is switched on in <main game processing> main game processing as shown in drawing 3 After resetting CPU and performing starting processing of the main-control substrate 51 Pattern control processing (S1\_3) is

usually performed. special pattern control processing (S1\_2) set an interruption permission flag (S1\_1) and concerning the change display of a pattern specially — and it is usually related with the change display of a pattern — When the random number (specially random number for a pattern HAZURE halt) and great success judging which determine a halt pattern when a great success judging becomes HAZURE become great success or HAZURE, the random number (random number for production condition selection) for choosing what production processing is performed is updated (S1\_4).

[0048] As shown in drawing 4, first, the periodical interruption processing performed when the <interruption processing> interruption permission flag is set makes each register shunt (S2\_1), updates a great success judging, a great success halt mode, and the random number usually used for a pattern judging etc. (S2\_2), and carries out the input port reading processing (S2\_3) for reading a signal from input port.

[0049] Then, output-control processing (S2\_4) of the command for transmitting to the sub control board 52 is performed, and the general winning-a-prize sphere sensor 59, the starting winning-a-prize sphere sensor 60, the Dainyuu awarded-balls sensor 57, and when the input signal from pattern starting sensor 58 grade is usually detected, input signal processing (S2\_5) according to the input signal concerned is performed.

[0050] Then, the timer update process (S2\_6) for updating a timer is performed, unusual management processing (S2\_7) for corresponding to an error is performed, and port output processing (S2\_8) of the command for transmitting to the sub control board 52 is performed.

[0051] Then, ramp-control processing (S2\_9) for controlling ornament Light Emitting Diode 17 grade is performed, and expenditure processing (S2\_10) of awarded balls.

when a game sphere wins a prize of the general winning-a-prize mouth 9; the starting winning-a-prize mouth 12, and the Dainyuu \*\* mouth 13 is performed.

[0052] Then, each register is returned (S2\_11), and an interruption permission flag is reset (S2\_12) and it returns from interruption processing.

[0053] < each the input signal processing (S2\_5) of each mentioned [ which was mentioned above and input-signal-processed ] above By the processing for judging whether the game sphere won a prize of a winning-a-prize mouth, as shown in drawing 5 The Dainyuu awarded-balls sensor check processing for confirming whether the Dainyuu awarded-balls sensor 57 detected the winning-a-prize sphere (S3\_1), The general winning-a-prize sphere sensor check processing for confirming whether the general winning-a-prize sphere sensor 59 detected the winning-a-prize sphere (S3\_2), In order to perform the starting winning-a-prize sphere sensor check processing (S3\_3) for confirming whether the starting winning-a-prize sphere sensor 60 detected the winning-a-prize sphere, and the check of whether the pattern starting sensor 58 usually detected the passage sphere, pattern starting sensor check processing (S3\_4) is usually performed one by one.

[0054] By the special pattern control processing (S1\_2) mentioned [ which was

mentioned above and <-special-pattern-control-processed ] above, as shown in drawing 6 , when it judges whether the game sphere won a prize of the starting winning-a-prize mouth 12, and it was detected by the starting winning-a-prize sphere sensor 60 (S4\_1) and there is no winning-a-prize sphere to the starting winning-a-prize mouth 12, the demonstration screen processing (S4\_2) for displaying a demonstration screen is carried out

[0055] When it judges whether it is the no which has, on the other hand, permitted generating of great success of the lottery result which used the random number when a game sphere wins a prize of the starting winning-a-prize mouth 12 (S4\_3) and generating of great success is permitted, while determining the production of great success (S4\_4), a great success pattern is determined (S4\_5).

[0056] Moreover, when generating of great success of the lottery result using the random number is not permitted, the production of HAZURE is determined (S4\_6) and it judges whether this determined production is reach production further (S4\_7). When the result of this judgment is reach production, a HAZURE pattern with reach is chosen and determined (S4\_8), and when it is not reach production, a reach-less HAZURE pattern is chosen and determined (S4\_9).

[0057] Then, the command corresponding to the pattern determined in each pattern determination processing (S4\_5, S4\_8, S4\_9) is generated (S4\_10).

[0058] Then, it judges whether the halt display mode of the special pattern in the pattern display 5 was actually becoming it a great success specially (S4\_11). Here, when great success has occurred, in order to reset a pattern game counter specially, to return to initial value (S4\_12) and to make a game perform specially, after performing game processing (S4\_13) specially, pattern control end processing (S4\_14) is performed specially, and processing is returned.

[0059] On the other hand, when great success has not occurred, "1" is specially added to a pattern game counter (S4\_15), pattern control end processing (S4\_14) is performed specially, and processing is returned.

[0060] Usually, by pattern control processing (S1\_3), a game sphere usually passes the pattern starting mouth 10, and it judges [ which was mentioned / which was mentioned above and <-common-pattern-control-processed / above ] whether the pattern starting sensor 58 usually detected the passage sphere (S5\_1). And when the pattern starting sensor 58 usually detects a passage sphere, it judges whether a pattern game counter value is more than "1000" specially (S5\_2).

[0061] When a pattern game counter value is more than "1000" specially here, namely, when the number of winning-a-prize spheres to the starting winning-a-prize mouth 12 is over the number of times which great success should generate based on predetermined probability sharply The high setting information lamp 16 is turned on, that is reported (S5\_3), and with reference to a high probability selection table (S5\_4), in order to usually shorten pattern change time, pattern change time quantity setting processing (S5\_5) is usually performed.

[0062] Then, when it usually judges whether the halt display mode of a pattern

usually serves as a hit in the pattern display 7 (S5\_6) and the hit has occurred, in order to usually extend the open time of the electric accessory 11, electric accessory quantity setting control processing (S5\_7) is usually performed, the winning-a-prize possibility to the starting winning-a-prize mouth 12 is raised, and processing is returned.

[0063] On the other hand, when a pattern game counter value is under "1000" specially (i.e., when the number of winning-a-prize spheres to the starting winning-a-prize mouth 12 is not over the number of times which great success should generate based on predetermined probability sharply), in order to usually make pattern change time into time, with reference to a selection table (S5\_8), setting processing (S5\_9) is usually performed pattern change time at the time of usual.

[0064] Then, when it usually judges whether the halt display mode of a pattern usually serves as a hit in pattern display (S5\_10) and the hit has occurred, in order to usually make open time of the electric accessory 11 into time, electric accessory usual setting control processing (S5\_11) is usually performed, and processing is returned by making winning-a-prize possibility to the starting winning-a-prize mouth 12 into a normal state.

[0065] With reference to a <probability selection table>, next drawing 8, a selection table is explained at the time of the high probability selection table mentioned above and usual. The high probability selection table is considering the case where a random number value becomes "26" - "255" as the hit out of 256 random numbers of "0" - "255", as shown in the upper case of drawing 8.

[0066] On the other hand, at the time of usual, the selection table is considering the case where a random number value becomes "116" - "255" as the hit out of 256 random numbers of "0" - "255", as shown in the lower berth of drawing 8.

Therefore, when a high probability selection table is chosen, as compared with the case where a selection table is chosen at the time of usual, it becomes easy to generate a hit only about 1.6 times.

[0067] < common pattern change time, the time of a high setup mentioned above usually with reference to electric accessory open time >, next drawing 9 and the common pattern-usually change time at the time of a setup, and common electric accessory open time are explained. Specially, when a pattern game counter value is under "1000" and it is usually set up, as setting control is usually performed and it is shown in the lower berth of drawing 9, the change time of the common pattern in the pattern display 7 usually serves as 50sec(s), and the open time of the electric accessory 11 usually serves as 0.3sec(s).

[0068] While the change time of the common pattern in the pattern display 7 is usually shortened by 5sec(s) on the other hand as high setting control is performed and it is shown in the upper case of drawing 9 when a pattern game counter value becomes more than "1000" and becomes a high setup specially, the open time of the electric accessory 11 is usually extended by 3sec(s).

[0069] Therefore, when high setting control is performed, while the change time of



the common pattern in the pattern display 7 is usually shortened to 1/10 as compared with the case where setting control is usually performed, the open time of the electric accessory 11 is usually extended 10 times. Such processing is performed for making it possible to continue a game, without reducing \*\*\*\* sharply, even if it is the case where cover raising possibility that a game sphere will win a prize of the starting winning-a-prize mouth 12, and raising possibility that great success will generate only the part, and a long time, and great success is not constituted.

[0070] That is, although the passage sphere of the pattern starting mouth 10 is usually memorizable to four pieces, when the storage number has become four of a upper limit, the passage sphere beyond it is not memorized. Therefore, it will be ignored though a game sphere usually passes the pattern starting mouth 10 how much until the change display of the common pattern over the very first storage value is completed when the storage number has become four of a upper limit. Then, possibility that a passage sphere will not be memorized can be decreased and the number of times of a change display of the common pattern in the pattern display 7 can be made to usually increase by [ in the pattern display 7 ] usually shortening the change time of a pattern.

[0071] Moreover, possibility that a game sphere will win a prize of the starting winning-a-prize mouth 12 can be raised, and the number of times of a change display of the common pattern in the pattern display 7 can be made to usually increase by usually extending the open time of the electric accessory 11.

[0072] In addition, usually, electric accessory open time is not restricted to the set point for shifting to high probability, common pattern change time, and the thing mentioned above, but can be changed suitably and can be carried out.

[0073] Moreover, usually, although the winning-a-prize possibility to the starting winning-a-prize mouth 12 is controlled pattern change time and by usually controlling electric accessory open time, you may perform only either. Furthermore, it is also controllable to change the number of game spheres usually paid out pattern change time and when it usually changes to these in addition to control of electric accessory open time and a game sphere wins a prize of the starting winning-a-prize mouth 12. For example, usually, at the time of a setup, five game spheres can be paid out to the winning-a-prize sphere to the starting winning-a-prize mouth 12, and control which pays out ten game spheres to the winning-a-prize sphere to the starting winning-a-prize mouth 12 can also be performed at the time of a high setup. When such control is performed, reduction of the number of game spheres with which a game is presented can be suppressed, it will become possible to perform a game with more game balls, and the winning-a-prize possibility to the starting winning-a-prize mouth 12 will also increase so much.

[0074] In addition, although the operation gestalt mentioned above explained taking the case of the pachinko machine as a typical game machine, this invention is applicable to other pinball machines which perform a game using a game sphere.

[0075]

[Effect of the Invention] Since the pinball machine of this invention is equipped with the composition mentioned above, it can do the following effects so. Namely, although the transaction count of the special pattern in pattern display exceeded the predetermined value specially according to the pinball machine of this invention By establishing the increase means in winning-a-prize possibility for raising possibility that a game sphere will win a prize of a starting winning-a-prize mouth, when the lottery result in a winning-a-prize determination means is not winning, and making more game spheres win a prize of a starting winning-a-prize mouth. A game can be enjoyed without being able to make the number of times of a lottery in a winning-a-prize determination means increase, and covering a long time by the increase in reward balls, and reducing \*\*\*\* sharply.

[0076] moreover, according to the game machine of this invention, usually raise the success-in-an-election probability in a pattern determination means, or By usually shortening the change display time of a pattern, or usually, extending the time when a change member is changed into the state in a pattern display means of being easy to receive a game sphere Possibility that a game sphere will win a prize of a starting winning-a-prize mouth is raised, and it is carrying out that it seems that the number of awarded balls further paid out when a game sphere wins a prize of a starting winning-a-prize mouth is made to increase. Therefore, a game can be enjoyed, without being able to make the number of times of a lottery in a winning-a-prize determination means increase using existing equipment, without adding special equipment etc., and covering a long time by the increase in reward balls, and reducing \*\*\*\* sharply.

[0077] Moreover, according to the pinball machine of this invention, the information means for reporting to a game person that the increase means in winning-a-prize possibility is operating is established. Therefore, without a game person sensing a feeling of impatience, it becomes possible to make it recognize that bailout is taken to a game person, and he feels easy, and can taste the fun of a game.

[0078] moreover -- according to the pinball machine of this invention -- control of a main control unit -- being based -- \*\* -- the sub control unit for controlling constitutes the increase means in winning-a-prize possibility Therefore, the control burden of a main control unit decreases and it becomes possible to perform smooth game control. Moreover, since the structure of a main control unit becomes easy, verification of whether the main control unit is converted unjustly becomes easy.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] Front view of the game board used for the pachinko machine concerning 1 operation gestalt of this invention

[Drawing 2] The block diagram showing the outline composition of a control unit

[Drawing 3] The flow chart which shows the procedure of game control (main game processing)

[Drawing 4] The flow chart which shows the procedure of game control (interrupt processing)

[Drawing 5] The flow chart which shows the procedure of game control (various input signal processings)

[Drawing 6] The flow chart which shows the procedure of game control (specially pattern control processing)

[Drawing 7] The flow chart which shows the procedure of game control (usually pattern control processing)

[Drawing 8] Explanatory drawing of a probability selection table

[Drawing 9] It is usually explanatory drawing of pattern change time and common electric accessory open time.

### [Description of Notations]

1 Game Board

2 Guide Rail

3 Game Section

4 Obstacle — Member

5 It is Pattern Display Specially.

6 It is Usually Pattern Display Light Emitting Diode.

7 It is Usually Pattern Display.

8 Out Mouth

9 General Winning-a-Prize Mouth

10 It is Usually Pattern Starting Mouth.

11 It is Usually Electric Accessory.

12 Starting Winning-a-Prize Mouth

13 Large Winning-a-Prize Mouth

14 It is Usually Pattern Storage Light Emitting Diode.

15 It is Pattern Storage Light Emitting Diode Specially.

16 High Setting Information Lamp

17 Light Emitting Diode for Ornament

50 Control Unit

51 Main-Control Substrate

52 Sub Control Board

53 Main CPU

57 Dainyuu Awarded-Balls Sensor

58 It is Usually Pattern Starting Sensor.

59 General Winning-a-Prize Sphere Sensor

60 Starting Winning-a-Prize Sphere Sensor

61 Discharge Sphere Sensor

62 Return Sphere Sensor

64 Voice-Control Circuit

65 Loudspeaker

66 Awarded-Balls Control Circuit

67 Awarded-Balls Exhaust

68 Launcher

69 Factice CPU

73 VDP

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[Translation done.]

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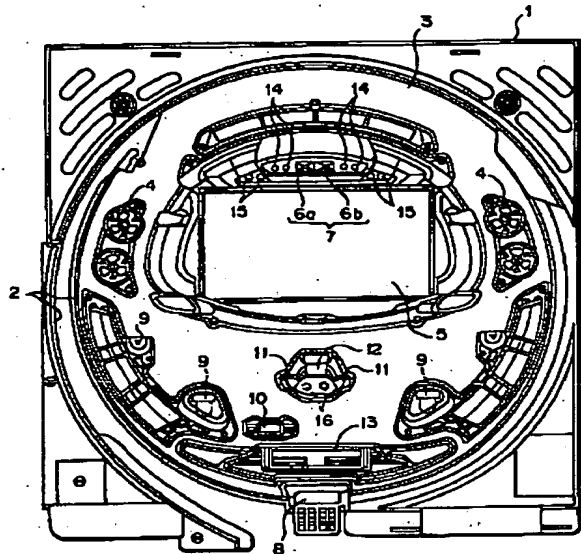
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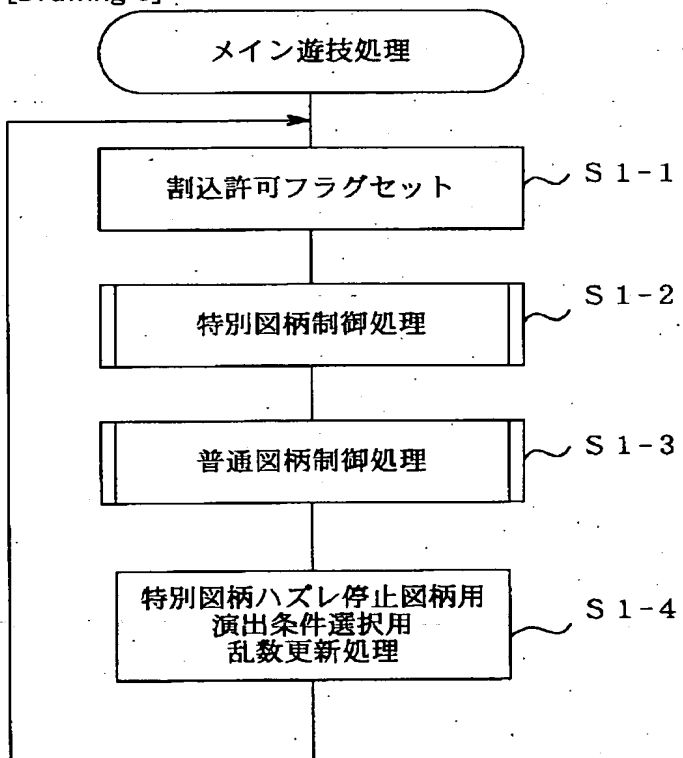
**DRAWINGS**

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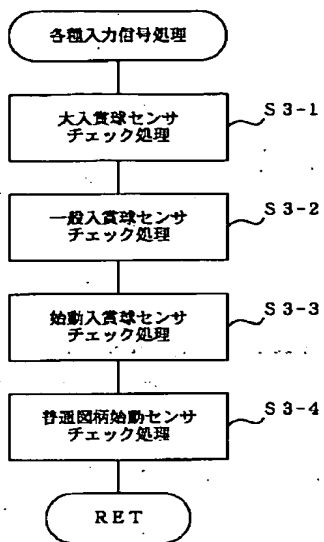
[Drawing 1]



[Drawing 3]



[Drawing 5]



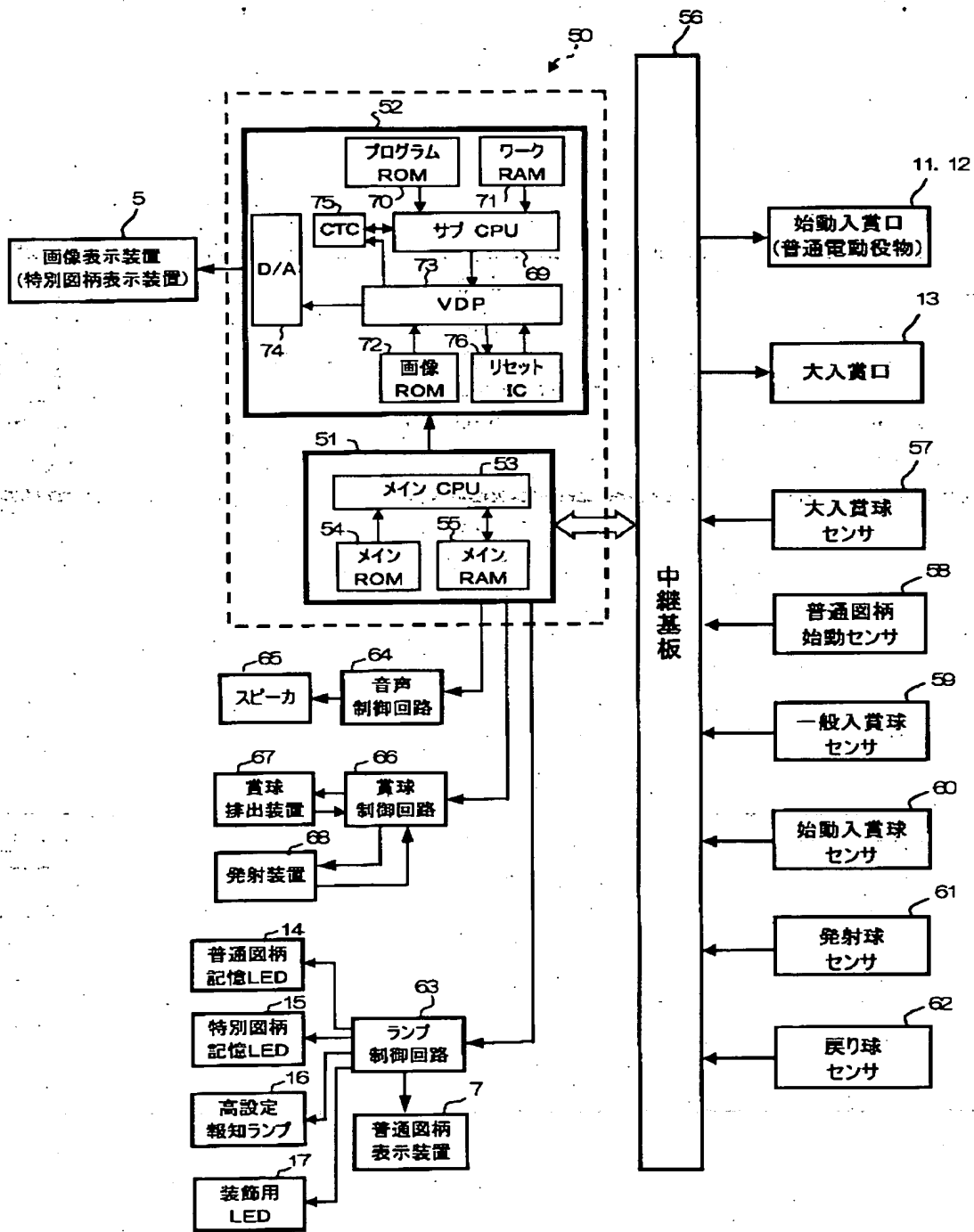
[Drawing 8]

確率設定	乱数の範囲	当たり乱数値
高確率 選択テーブル	0～255	26～255
通常時 選択テーブル	0～255	116～255

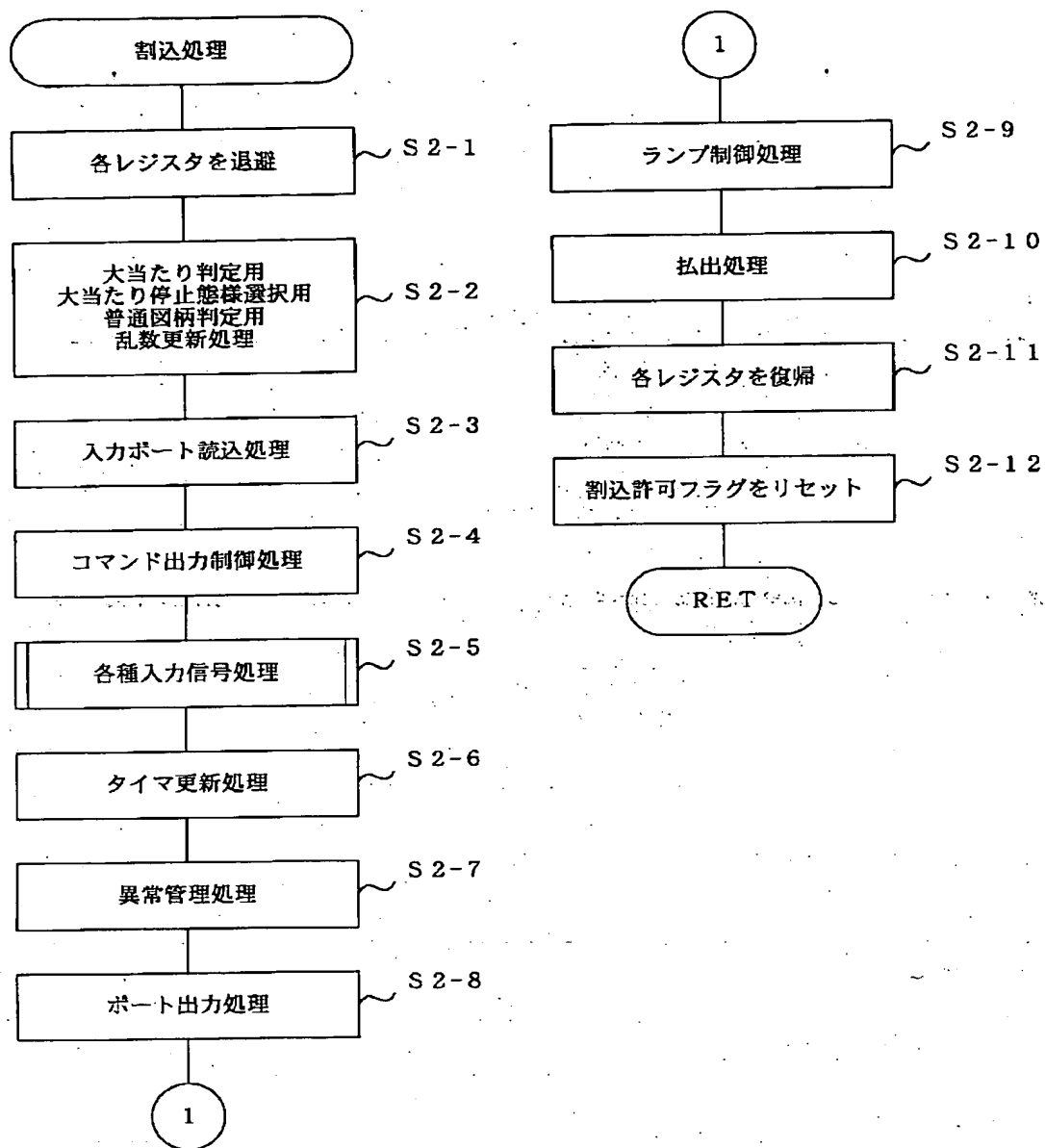
[Drawing 9]

時間設定	普通図柄変動時間	普通電動役物固時間
高設定制御	5 sec	3 sec
通常設定制御	50 sec	0.3 sec

[Drawing 2]

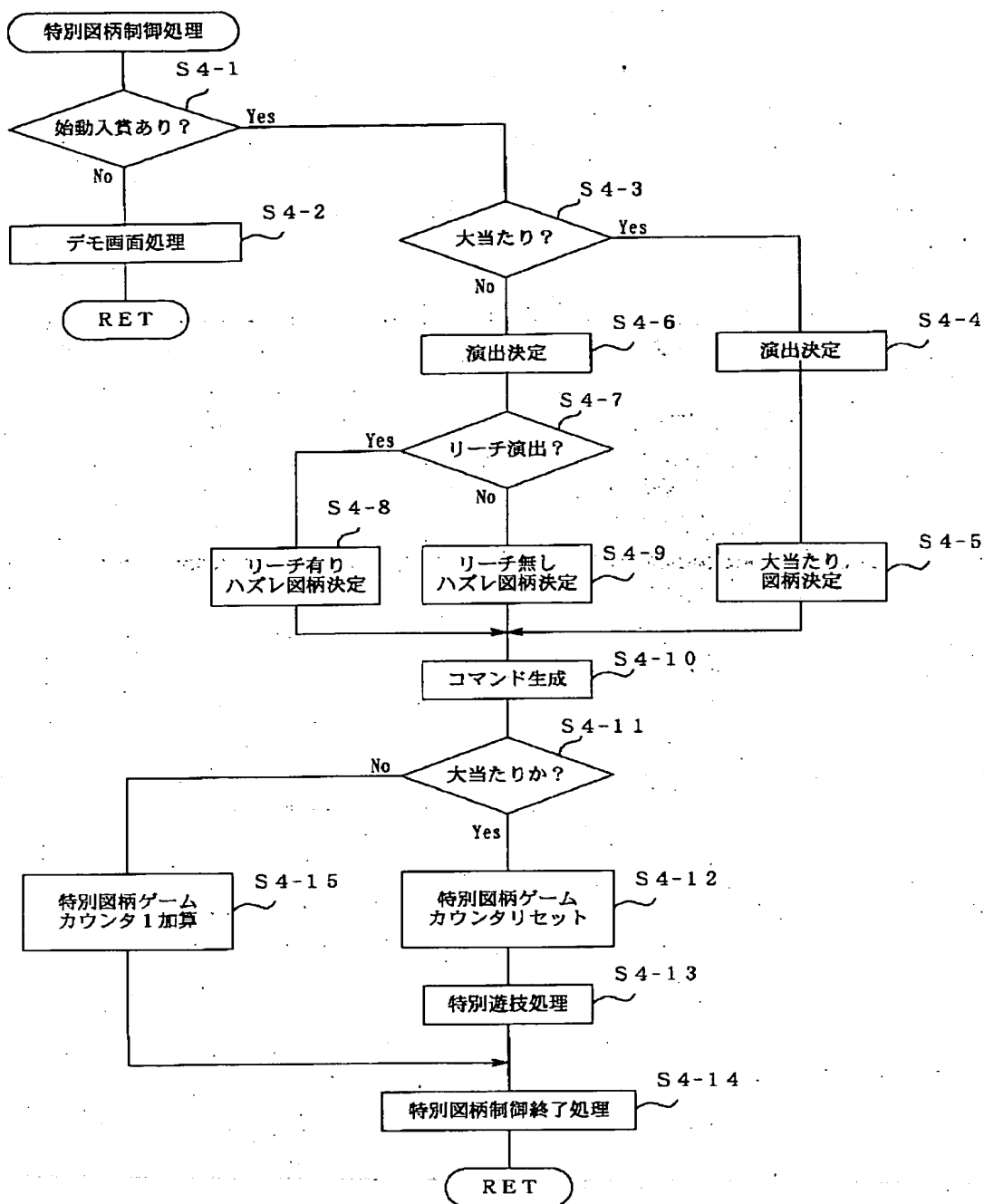


[Drawing 4]

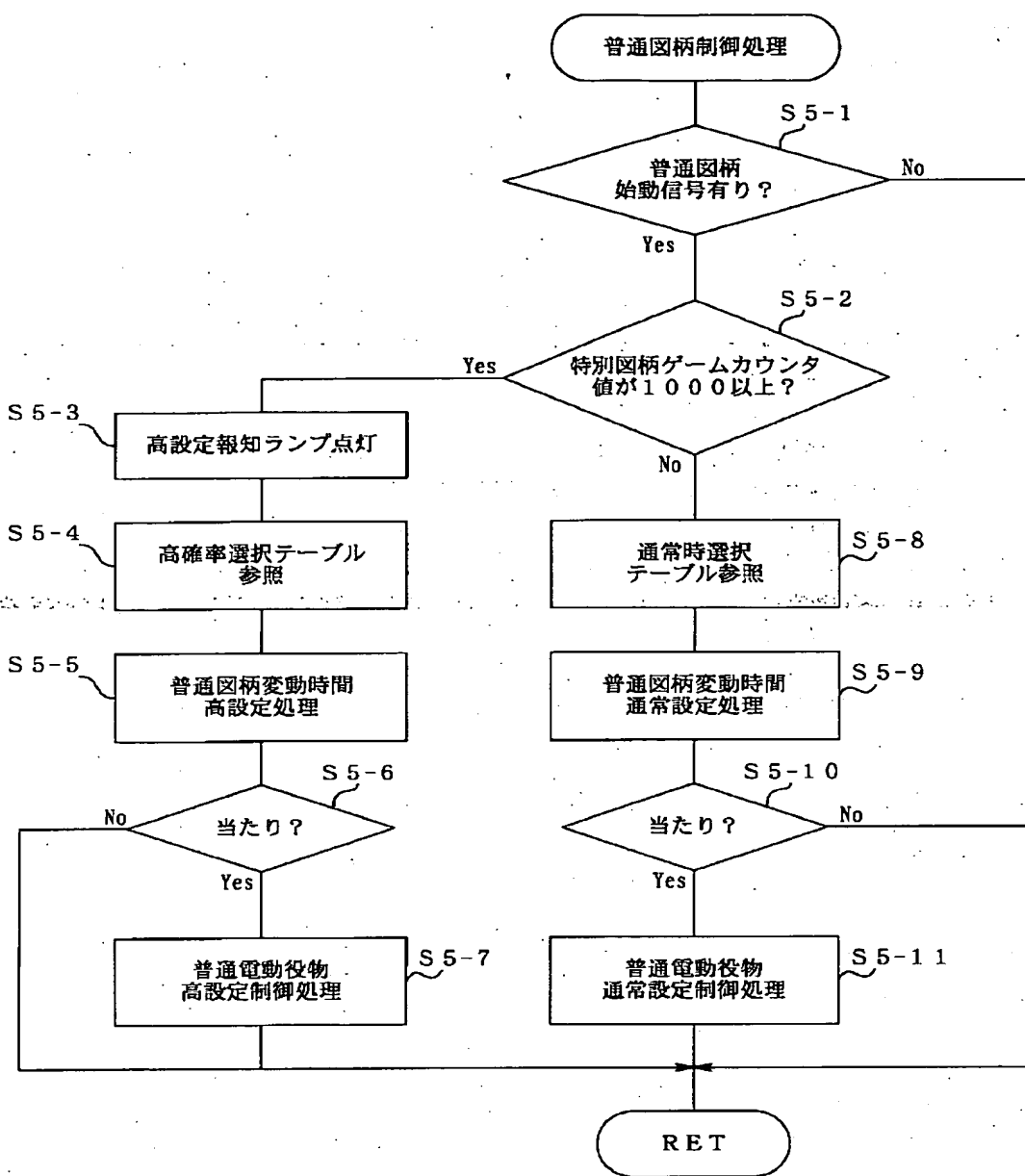


[Drawing 6]





[Drawing 7]



[Translation done.]